

The Detroit Children's Health Study: An Examination of the Effects of Ambient Air Exposure on the Respiratory Health of Asthmatic Children

Ann Williams

Field Studies Coordinator

U.S. EPA Office of Research and Development (ORD)/National Health and Environmental Effects Research Laboratory (NHEERL)/Human Studies Division (HSD)/Epidemiology and Biomarkers Branch (EBB)

(919) 843-4833

williams.annh@epa.gov

Authors: Ann Houston Williams¹, Gina Lisa Andrews¹, Shaibal Mukerjee², Lucas Neas¹

¹U.S. EPA ORD/NHEERL/HSD/EBB

²U.S. EPA ORD/National Exposure Research Laboratory (NERL)/Human Exposure and Atmospheric Sciences Division (HEASD)

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The United States has experienced a significant increase in childhood asthma since the 1980s. The U.S. Environmental Protection Agency's (U.S. EPA) Office of Children's Health Protection estimates that one of every 15 children under 18 years of age has asthma. In children under five years of age, asthma rates have increased 160 percent in the past 18 years. The Detroit Children's Health Study (DCHS) will examine the question of whether long-term, early-life exposures to emissions from traffic and other urban sources play a key role in the development and aggravation of allergic asthma in schoolchildren. Scientists from the NHEERL, carrying out the epidemiological and respiratory health study, are collaborating with those of the NERL to conduct an exposure assessment of air in the Detroit area. The study will aid in the further development of an Air Quality Criteria for Particulate Matter under the Clean Air Act (42 U.S.C. 7403(d)).

Parents of 15,000 children enrolled in fourth and fifth grades of selected Detroit and Dearborn Public Schools will receive a respiratory health questionnaire, along with a written request for permission for their children to participate in pulmonary function examinations. The respiratory health questionnaire consists of questions specific to the child including demographic information, childhood respiratory illness, history of asthma, and current respiratory health conditions. Over 3,000 children from 60 selected schools will attempt to perform routine pulmonary function and exhaled nitric oxide (eNO) examinations.

Ambient air pollutants will be measured at 25 elementary schools in the Detroit metropolitan area. These schools have been selected to represent areas close to and far from Detroit roadways, industrial and other urban influences, and the international border crossings with Canada, as well as those areas in between.

The DCHS will have a positive impact on our understanding of the effects of ambient air exposure on the respiratory health of asthmatic children. Additionally, through the U.S. EPA's work in the Detroit area and the state of Michigan, valuable partnerships have been developed with other federal, state, and local agencies. Collaborations have been established with the

Michigan Department of Environmental Quality; the Detroit and Dearborn, MI, Public Schools; the Detroit Department of Health and Wellness Promotion; community health organizations in the Detroit area; and academic institutions in the state of Michigan.

This is an abstract of a proposed presentation and does not necessarily reflect U.S. EPA policy.